DOCUMENT RESUME

ED 242 286 IR 010 995

AUTHOR Adams, Dennis M.
TITLE Computer Based Technology and the Language/Liberal Arts: Stepping into the Electronic Universe.
PUB DATE [83]
NOTE 32p.; Paper presented at EdCompCon '83 Conference (San Jose, CA, October 18-20, 1983).
PUB TYPE Guides - Classroom Use - Guides (For Teachers) (052) -- Information Analyses (070) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Computer Oriented Programs; Computer Software; *Liberal Arts; Programing; Reading Instruction; *Reading Skills; *Technological Advancement; Telecommunications; Writing Instruction; Writing Processes; *Writing Skills
IDENTIFIERS *Computer Uses in Education

ABSTRACT

The need for the liberal arts curriculum to incorporate new technology in order for education to reach its potential is examined in this paper, which also looks at the potential for computer-based telecommunications to extend continued education for professionals. A survey of applications of computer-based telecommunications in reading and writing instruction covers issues related to use of a word processor, courseware and software problems, and computer programs as a model for children's writing. Computer programming is discussed in terms of its relationship to reading and writing skills, including mastering rules of syntax, mastering a sight vocabulary, enhancing visual discrimination, learning to respond to semantic cues, and comprehension. Suggestions are given for the following 12 activities for students: a scrapbook on computers, a computer writing and book activity, an assignment for role-play as a newspaper reporter, a time line, a computer dictionary, creative drama--acting out robotics and programming, a walking field trip, a junk sculpture project, doing art on the computer, collecting computer related want ads, protecting people from computers, considering how technology helps or hurts, and examining mistakes of past predictions to better look into the future for new technology. (LMM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.

Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

ED242286

COMPUTER BASED TECHNOLOGY AND THE LANGUAGE/LIBERAL ARTS: STEPPING INTO THE ELECTRONIC UNIVERSE

Dennis M. Adams

IR010995

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Dennis M.Adams

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

The history of technology ranges over thousands of years. Action has always been and remains the central purpose of technological advancements. The application of devices and processes is quickly taking on an ever more powerful guise. Technology is offering new perspectives in both the language and liberal arts.

The ability to understand a wide range of human experiences (musical, artistic, historical, literary, etc.) is central to a liberal arts curriculum and technology must play a central role in the curriculum of the future.

Present computer based technology is not only in the process of changing our way of life, but is impacting on all sections of human civilization. If we fail to come to terms with ourselves as generators and users of technology, then civilization itself has a good chance of disappearing.

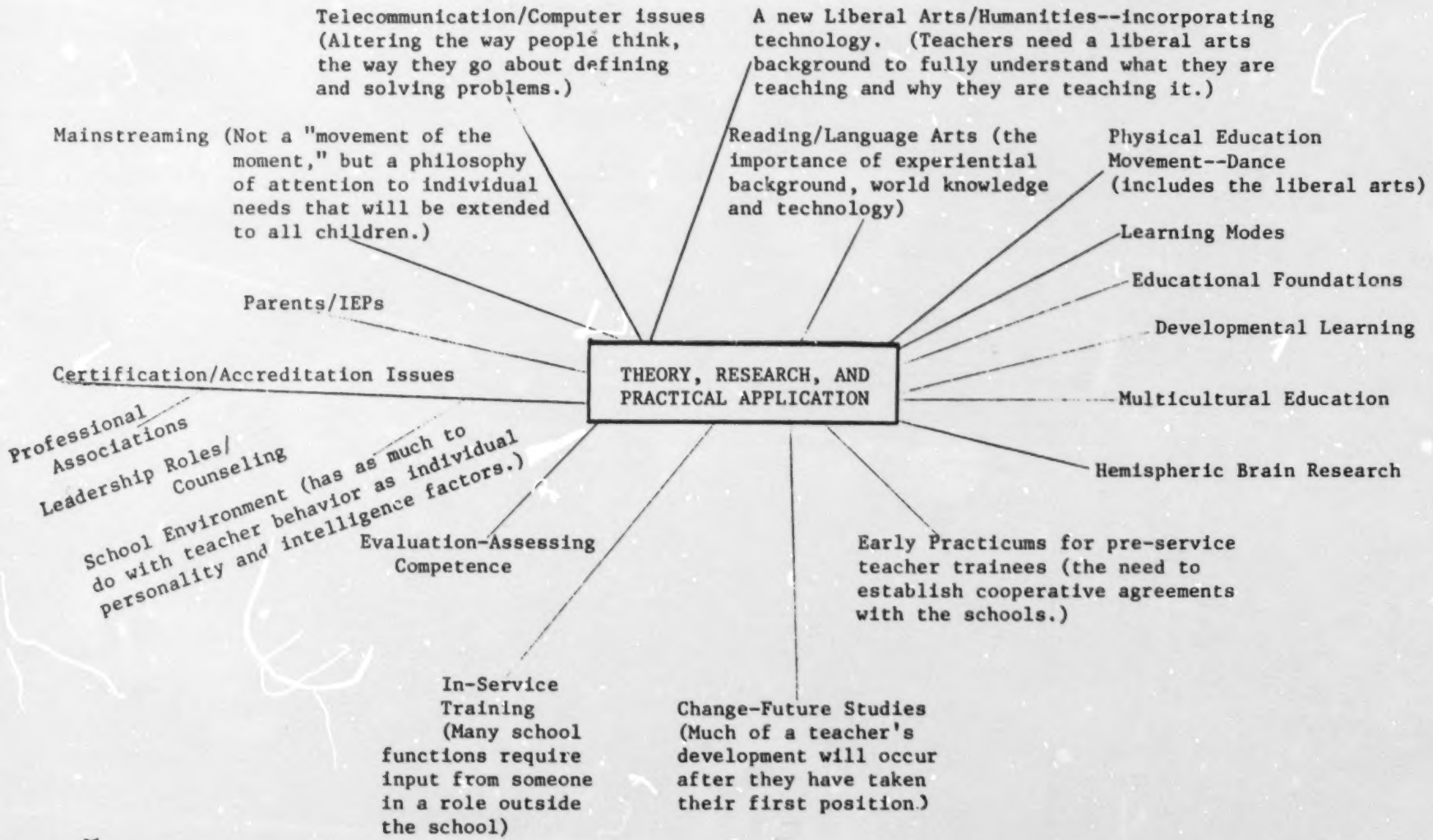
Computers really started in a language/liberal arts environment. Alan Turing, at Cambridge University in England designed what many consider to be the first digital computer in the 1930's. It was designed to analyze language and break codes. As time went by, computers became increasingly isolated in a physical science (mathematical) environment. It wasn't until the 1970's that education and the language/liberal arts started to incorporate computers into the leading edge of development.

For education to reach its potential in our post-industrial high technology based society requires liberal arts courses to be taught side by side with courses on the latest technology.

If technology stays within an isolated scientific shell, then it reinforces the tendency to accept technically framed explanations of problems that might best be dealt with by other fields. A scientific focus needs to be tempered with the liberal arts for a more accurate perception of our place in the world, our problems, and potential solutions. A knowledge of a broader range of elements may lead to solutions of some of our more pressing current (and future) dilemmas.

Every sphere of human concern cannot be formulated and resolved by the "scientific method" of "value free" laboratory methods.

"A NEW LIBERAL ARTS (incorporating technology) LEARNING, AND THE SCHOOLS


Telecommunication/Computer issues (Altering the way people think, the way they go about defining and solving problems.)
A new Liberal Arts/Humanities--incorporating technology. (Teachers need a liberal arts background to fully understand what they are teaching and why they are teaching it.)
Mainstreaming (Not a "movement of the moment," but a philosophy of attention to individual needs that will be extended to all children.)
Reading/Language Arts (the importance of experiential background, world knowledge and technology)
Physical Education Movement--Dance (includes the liberal arts)
Learning Modes
Educational Foundations
Developmental Learning
Parents/IEPs
Certification/Accreditation Issues
THEORY, RESEARCH, AND PRACTICAL APPLICATION
Multicultural Education
Professional Associations
Leadership Roles/ Counseling
School Environment (has as much to do with teacher behavior as individual personality and intelligence factors.)
Hemispheric Brain Research
Evaluation-Assessing Competence
Early Practicums for pre-service teacher trainees (the need to establish cooperative agreements with the schools.)
In-Service Training (Many school functions require input from someone in a role outside the school)
Change-Future Studies (Much of a teacher's development will occur after they have taken their first position.)

The Marriage of Computer, Television, Satellite, and Telephone Technology Can Help Professionals Caught in a Paradox

Besides the more than 50 million students in school, many newly graduated professionals are forced to take jobs in locations far from any college campus. Yet they must keep up to date in their field to function on the job--to say nothing of needed intellectual and artistic stimulation. Education and business are now starting to cooperate in order to meet this need for continued learning across both the professional and liberal arts curruculum. The most important effort is computer based telecommunications education. These learning experiences are often offered for class credit so that they are taken seriously--and meet professional needs for advanced degrees.

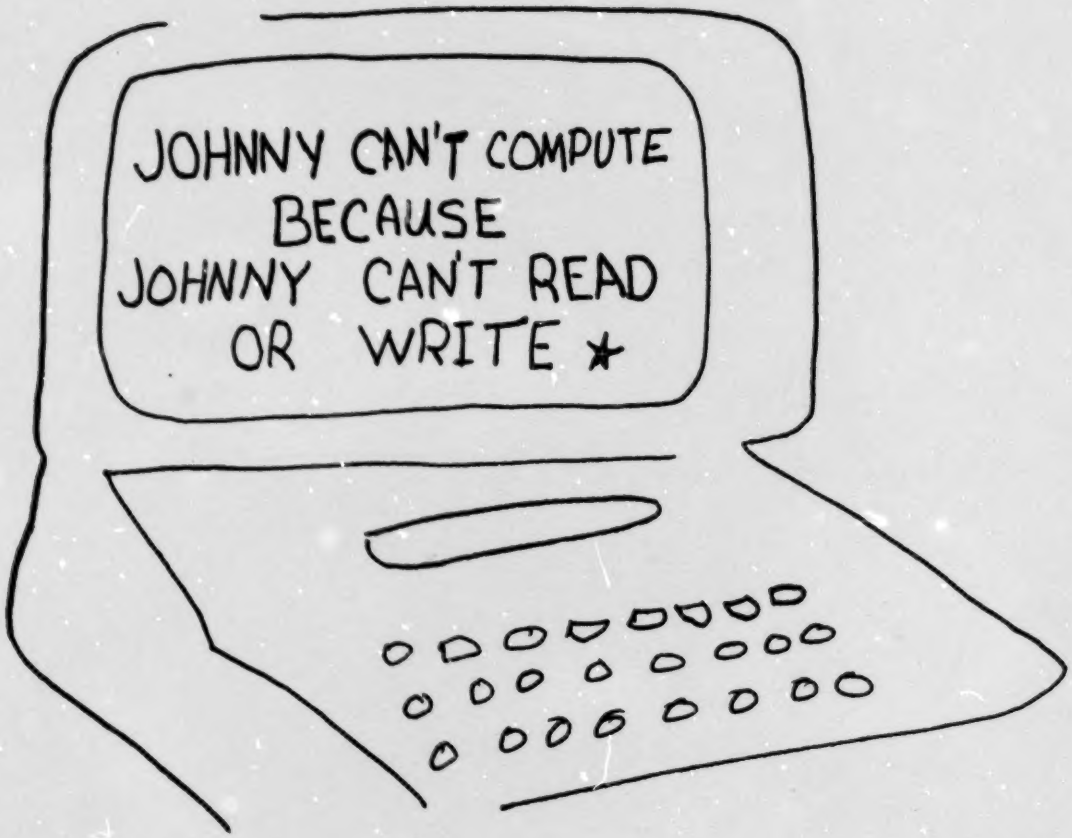
Some type of electronic education has been going on for 20 years. However, these new combinations of technologies are much more powerful instructionally and they raise the antenna much higher . These telecommunication based universities are just beginning to offer a wide range classes under new accreditation guidelines. The National Technological University is an example of a public institution that has met all of the standards and is just beginning to broadcast a master's degree program to engineers across the country. This particular electronic university is sponsored by a group of 25 engineering schools (from M.I.T. to Stanford) and an even larger number of corporations.

These electronic teaching methods (using a combination of computer, television, satellite, and telephone technology) allow the best professors from around the country to offer courses in the most remote region. Not only engineers, but the military and businesses that frequently transfer workers see the potential of electronic schools. There are even groups that assist in organizing these electronic courses--ALLTEL (Assessing Long-Distance Learning via Telecommunications) is one of the organizations that deal with implementing this electronic learning concept.

People have most often used technology to improve their lives. There is hope that we will use the good possibilities of computer based telecommunications--and avoid at least some of the bad. There is no reason why we can't apply the technology to what we imagine to be our problems. Personal, educational, social, or geopolitical concerns can be brought into the educative process (from the pre-school to the post college level).

Computer Based Telecommunications

and the Reading/Writing Process



* For the gifted student (who can read) the ideal state would be when society perceives that it is just as bad to say "Jane is bored" or "Johnny can't read."

Teachers must search for the few programs that retain the intellectual depth and wholeness of the reading and writing process.

THE USE OF COMPUTERS IN THE WRITING PROCESS

I PREWRITING ACTIVITIES

-for example, MUSIC (what does it make you think of?)

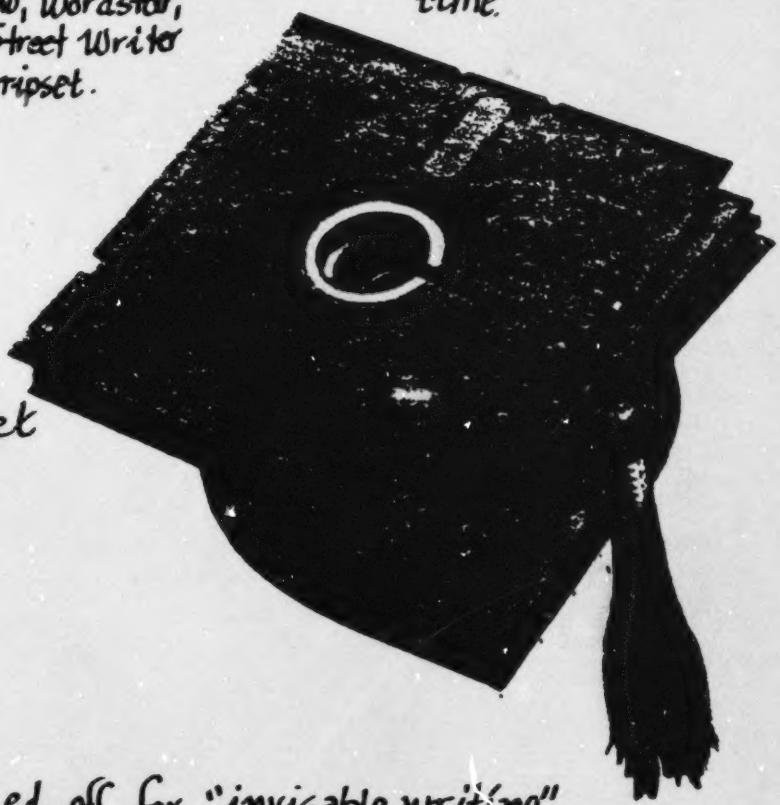
A clustering program on the computer can pull 100 words or phrases (rock groups, classical music, lyrics, etc.) When the children run out of ideas they can tap this data base.

II WRITING

There are good adaptable software programs like First Liner, Abuse, Interactive Fiction, Eliza — and there are good word processing programs like Majic Window, Wordstar, Bank Street Writer and Scripset.

III POSTWRITING

Here the computer can be used to check spelling and let you know how many times you use the word [and] and highlet each time.



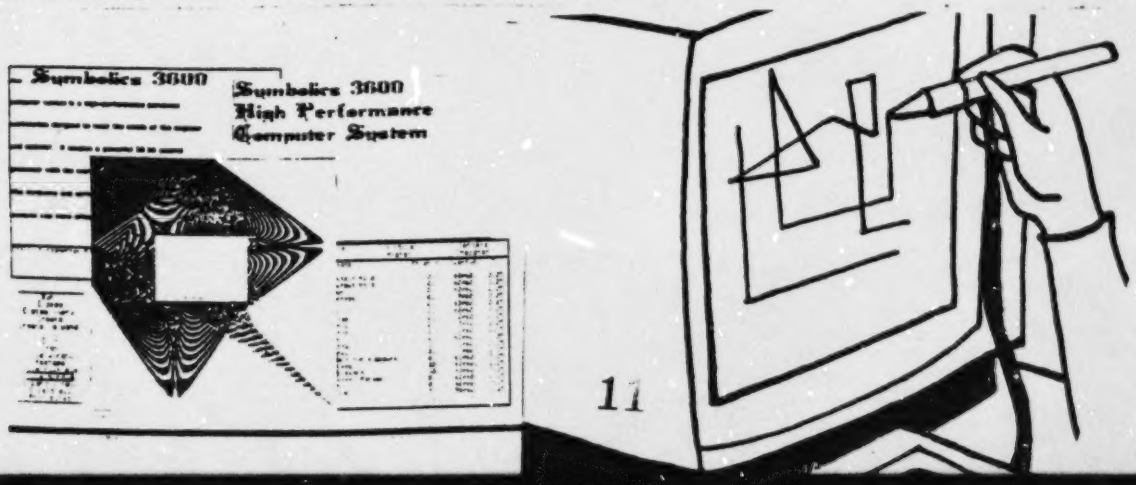
Some children will never get the handwriting down – these programs will help them see their thoughts in print for the first time.

Monitors can be turned off for "invisable writing" which focuses concentration... - Monitors can also be crossed so that student ⓐ sees what student ⓑ is writing. (ⓐ can make comments as ⓑ writes along.)

Current technology can influence fiction, scientific reports, poems, and language stories. For language experience stories (with younger students), teachers simply follow the philosophy of "what I can think I can say, what I can say I can write," (or someone can write for me), and can be read by me and others. For children who don't like to type, there is a peripheral device that allows students to print, or write in longhand on a touch sensitive plate--and the computer sets it up on the screen in typewriter-like print.

It is possible to cause some new problems when you use a word processor. For example, recently I was helping some sixth grade students in a local classroom. One of the children complained that her paper was only four pages long and the teacher said it had to be five. "Oh, that's easy," I said, "just move the margins in, up and down--now it is five pages." You can imagine the teacher's reaction.

Another small concern involving word processing had to do with what a computer can and can't do. One teacher reacted strongly to seeing a letter-perfect typed language experience story hot off the printer. "Look at this--the computer wrote the story for him." Well, the machine didn't write the story. It did, however, give the student an exciting new pencil and sketch pad that functions as an extension of the child.



56

12

11

Computers and Reading

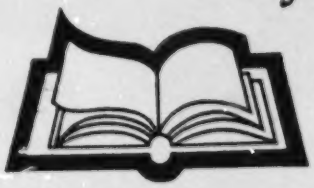
Space – Time –
Sequence – Animation
Indexing – Glossary
Notetaking

Reading on the computer has advantages in:

Computers do these 5 things better (or at least less expensively) than book

- Modifiability
- Expendability
- Collapsibility
- Reorganization
- Specification

Omitted instances – Books (You can be sure that the computer won't overlook things.)

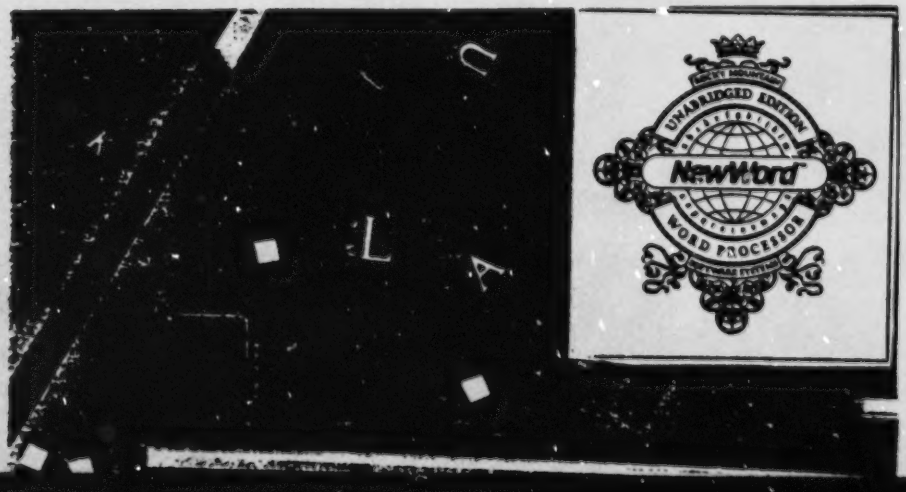


And computers can write your vocabulary list for you

The computer can individualize how information can be cued – for example important information can be capitalized, outline or map information from text, and even present notes that cover key issues. Patterned notetaking can interact back into the text – a central concept can be highlighted and notes relating to major issues can be drawn around it.

Given the TV monitors computers use; books may be read more quickly by good readers.

Slow readers seem to do better on the computer when the print can be increased in size, speed of presentation altered, and graphics can be presented. [Although it should be noted that some of these elements can increase the comprehension of good readers.]



Courseware and Software Problems

There is a great deal of trouble, however, with packaged programs that involve long reading passages. The "reading" portion of most programs is stilted, unimaginative, and seems to have a negative influence on students who do most of their reading on the computer. Even simple questions use the lowest level of thinking. For example:

Current Version		One Alternate Version	
Computer:	Take a mental photograph of Dreiser's dramatic technique. Describe some important detail.	C:	Imagine two people talking about Dreiser's dramatic technique. Who might these people be?
Karen:	I don't understand what you want me to say.		
Computer:	Concentrate now on seeing Dreiser's dramatic technique. What feature stands out the most. Describe. Your turn, Karen.	C:	What would _____ be saying?
		C:	And what would _____ be saying?
Karen:	Like the setting?	C:	Suppose you were a new character suddenly
Computer:	Yes, that seems okay.		

Karen: The factory vs. the hotel.

Computer: That's the idea, Karen. Give me some more information.

Karen: I see Hurstwood as a scab. Though he's been reduced, he still has some dignity, but the settings aren't dignified. The streets ....

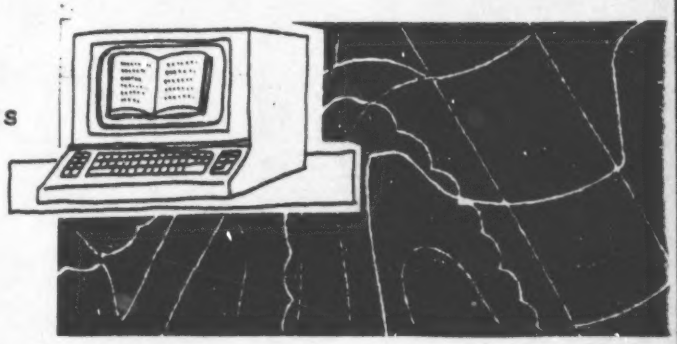
Computer: Go on, Karen.

Karen: The streets are ugly, dismal contrast.

Computer: Super, Karen.

introduced into the story. Where in the story would you be introduced?

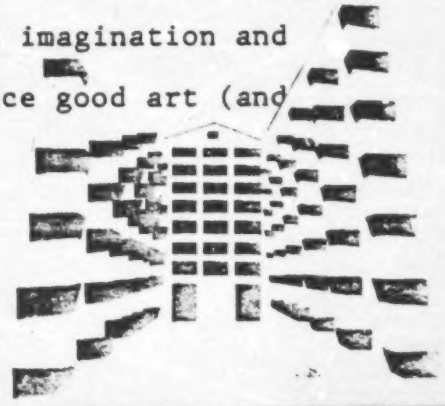
C: As_____, how would you feel about this situation?



Much of what is written contains features of what the author has read. Many problems in writing relate to poor reading (on and off the computer). Both are basic language processes that influence one another in perceptible and imperceptible ways. On a personal level, you can occasionally identify specific reading that has influenced the vocabulary, thinking, and the linguistic structure of what you write. In asking adult student teachers in a summer workshop to bring in the book that had the most influence on their thinking and

writing style, we ended up with everything from A Guide to Bartending (not serious) to Bear Bryant's Approach to Football Coaching (very serious). This writer was able to trace back certain present day writing inclinations to a book read in third grade -- Paddle to the Sea. The story involved a geographical adventure through Canada, the Great Lakes, the east coast of North America, and finally across the Atlantic to France. After reading that book the thinking-writing process (for better or for worse) was never quite the same again. Although the book wasn't particularly good literature, my own writing started to include references to maps and charts that went beyond geographical vocabulary; with complex language patterns to interest in diverse cultures. My knowledge of the world had been indelibly altered and my horizons had risen from a small village community to include different regions, cultures, and countries. A whole new dimension had been opened up in a way that has influenced me to this day, through two overseas Fulbright grants to writing about diverse geographical locations.

Many authors acknowledge the influences of others on the ideas and structures they write with. About once a year The New York Times asks a dozen or so major American novelists to list the recently published books that they have read. Some cite the impact of these books on their own imagination and work. This seems perfectly appropriate since good art (and



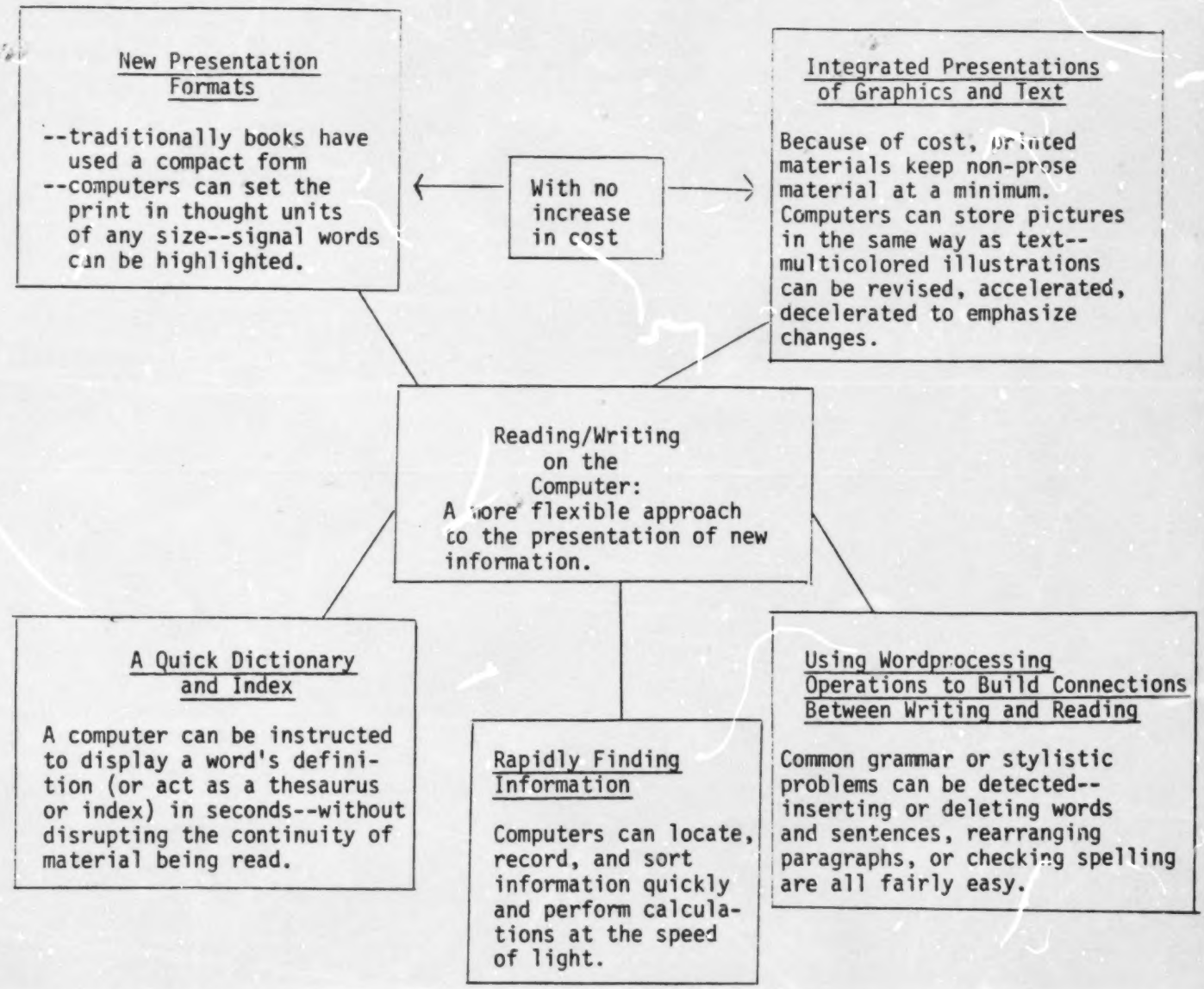
science) is often an original synthesis of what has already been thought out. Some writers are quite concerned about this. One, Norman Mailer, seems to fear some kind of intangible influence on his own writing. Consequently, he says that he doesn't read any contemporary writing but his own. But even he admits to being influenced by a preceding generation of novelists.

Writers for The New York Times, Associated Press, the New York Review of Books -- in fact, almost any journal, tend to follow very specific linguistic features found in what they have previously read in those newspapers, wire services, or journals. This is not the editing process. Many writers actually study the linguistic features of a target publication and structure their writing accordingly. Some writers go through a similar process at a less conscious level. Much of how we learn to write is implicit, and it would be difficult to identify the sources. Yet, they exert a powerful hold over our writing.

Children's writing tends to follow the specific format of the material they are asked to read. In an informal survey of school districts that made extensive use of computers, we found that children spent a great deal of their total reading time reading from the computer screen. Therefore, teachers must demand good hardware to minimize eye strain and better reading material (software) on the screen.

The linear factual style of many computer programs which often follow a tedious sequential pattern, seemed to serve as a model for how to do everything from punctuation to writing one sentence per line. In our pilot study on the subject, we found that there were variations in the writing of the children in both computer user and non-user groups. But strong trends were spotted which indicated that the features of the model set by what they read were reflected in children's writing. Perhaps the most important finding was that children who read the most elaborate linguistic structures tended to write more complex stories -- and children seemed to internalize specific linguistic features of their reading. Those with the least elaborate text wrote with the least elaborate structures. Those with the more elaborate text wrote with more elaborate structures.

Computer-Based Reading Programs Must Be Based On An Understanding Of Both Computers And Reading Instruction


New Presentation Formats
--traditionally books have used a compact form
--computers can set the print in thought units of any size--signal words can be highlighted.
With no increase in cost
Integrated Presentations of Graphics and Text
Because of cost, printed materials keep non-prose material at a minimum. Computers can store pictures in the same way as text--multicolored illustrations can be revised, accelerated, decelerated to emphasize changes.
Reading/Writing on the Computer:
A more flexible approach to the presentation of new information.
A Quick Dictionary and Index
A computer can be instructed to display a word's definition (or act as a thesaurus or index) in seconds--without disrupting the continuity of material being read.
Rapidly Finding Information
Computers can locate, record, and sort information quickly and perform calculations at the speed of light.
Using Wordprocessing Operations to Build Connections Between Writing and Reading
Common grammar or stylistic problems can be detected--inserting or deleting words and sentences, rearranging paragraphs, or checking spelling are all fairly easy.

Computer-Based Reading Activities Should:

a. Foster active student involvement
b. Focus on comprehension
c. Not teach reading as a collection of isolated skills
d. Emphasize reading prose--rather than individual words and sentences.
e. Be "child centered"--accomodating individual learning styles.

Computer Programming -- Reading/Writing Relationships

Reading skills are improved by simple programming activities. To program, students must perceive relationships (an important part of both reading and writing). For example, parts of a program are often not right next to each other, but they are related. Students need to know the vocabulary to spot those relationships so that when a program is carried out they know what to do.

Students can also gain a better conception of writing and reading by dealing with the analogy of words being related to key words; statements are put together to make programs (which may be thought of as paragraphs). The only real difference is that the content kind of assigns where paragraphs go, but members must be assigned to programs.

Even a very simple set of programming skills like those contained in Logo, require the young child to: make use of language in developing clear descriptions, decode symbols, develop vocabulary, make inferences, gain an understanding of sequencing, and use comprehensive skills (important concerns in learning to read and write). The research on childrens' programming in Logo suggests that they become articulate, self-aware, and confident learners, a plus for all curriculum areas and students, although it seems that students at both ends of the spectrum profit most.

There are certain reading-like strategies that must be mastered in order to function adequately as a programmer. Or, taking the obverse, if one learns to program, then certain reading-like strategies will be mastered.

> The Computer provides rapid feedback, the user-programmer is given almost instantaneous information regarding the rightness or wrongness of the encoded program.

The BASIC language is very explicit in its structures, there are very few exceptions to the rules. Therefore, all information returned to the programmer by the computer (feedback) should enhance the precision of encoding and reading from the computer screen.

The computer requires absolutely correct program statements, encoding becomes a powerful reinforcer of reading.

Teaching the Computer to Read

(Computer programming and developing reading skills.) There are relationships between reading and programming. The question which must be asked is, "Is it possible to enhance decoding skills through an encoding activity?" If we consider that we are writing a program in order to make it possible for the computer to read, then we might conclude that encoding can indeed enhance decoding skills.

Programming Strategies

Computer programming, like all problem solving tasks, requires an ordered approach. The following steps are identified with suggested correlates in reading.

1. Identify the problem to be solved.

   Suggested reading correlate: Anticipate the purpose of what is to be read.

2. Plan and analyze possible solutions.

   Suggested reading correlate: Ask questions about what is to be read.

3. Code the solution in the programming language.

   Suggested reading correlate: Encode for the reader.

4. Test program by running in the computer.

   Suggested reading correlate: Let the reader read the encoded material.

5. Correct program as needed.

   Suggested reading correlate: Make changes as necessary so the reader will be able to read the material properly.

There is a process in planning and writing a computer program that involves the programmer in actions that can be related to the act of reading. The act of tutoring the computer to read is, in a sense, like reading in a mirror. The tutor and tutee are, in reality, one.

Mastering rules of syntax. The rules in computer programming languages are essentially like the rules of syntax in general. There is an order, a structure, that must be consistently followed if the program is to be read by the computer. The following examples illustrate proper and improper syntax in BASIC:

a. LET A + B = X [incorrect]
b. LET X = A + B [correct]
c. IF A Y AND X THEN PRINT "GREAT!" [incorrect]
d. IF A Y AND A X THEN PRINT "GREAT!" [correct]

Mastering a sight vocabulary. The BASIC language has a number of words that are referred to as reserved words. Each reserved word must be used in a very specific way. In other words, each word has a specific function in a BASIC program statement. For the young programmer, the following list will provide adequate programming power:

a. PRINT, LET, GOTO
b. READ - DATA, IF - THEN, FOR - NEXT
c. INPUT, END, REM

Planning & Writing a Computer Program is Like Reading in a Mirror

Enhancing visual discrimination. Skill in visual discrimination is essential in the reading act. The errors caused by the lack of this skill are readily apparent in most low achieving readers. In computer programming, visual discrimination is crucial. The following are examples of this need:

a. PRINT TAB (15) "HERE" (incorrect)
b. PRINT TAB(15) "HERE" (correct)

Learning to respond to semantic cues. Perhaps the most important skill is to be able to respond properly to the semantic cues in a computer program. These cues have to do with anticipated meaning, i.e., that a given cue means that a certain word or structure is going to occur later in the program. The following examples can show this:

a. If READ is used, then DATA must also be used. In a literal sense, the computer will either look for DATA if READ is encountered, or will ignore DATA if READ is not encountered.
b. If FOR is used, a NEXT must follow, appropriately, further down the program. The computer must find NEXT if it encounters FOR.

Comprehension

Skills strengthened in noting exact details, grasping the sequence of events, following a set of directions, interpreting the organization, perceiving relationships, anticipating outcomes, and identifying antecedent events results in the development of Reading Comprehension.

Activities for Students

1. **A Scrapbook on Computers**

Simply have children make an illustrated book containing everything they can find about computers cut from newspapers, magazines, and advertisements put out by computer companies. This can be extended into looking for computers in current events -- and even a classroom art project -- with possibilities of designing book jackets to constructing bulletin boards.

2. **Computer Writing and Book Activity**

Use your best techniques for generating writing to generate stories and poems that involve how the children feel about computers. [One story starter that we found useful was the question: What makes a person, animal, or machine seem intelligent?]

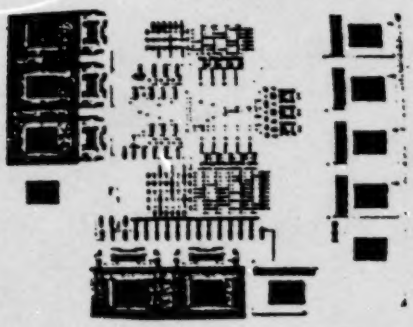
Have your students write a scene for a film or television program they have seen about robotics or computers -- have them develop the theme of whether or not these machines are good for people or society. This can be extended to include discussions bout all the ways computers enter our lives -- from the supermarket check out stands to gas stations, to the instant tellers in banks.

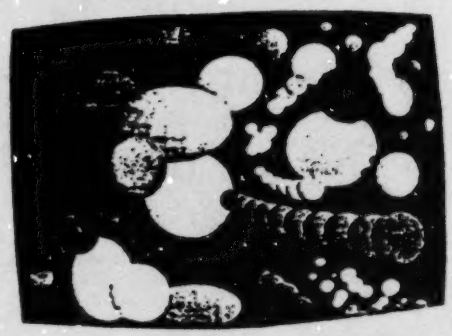
3. **Role-play Newspaper Reporter**

Interview people in the school and/or community to get the pro's and con's about computers. [Work out some good questions beforehand -- and try to find at least one person or business who hasn't had success with computers.] Include these interviews in a class "newspaper" or put a list of what you have learned up on the bulletin board. Have them look for different angles in stories for the same subject. Do the same thing with the evening news, popular music, movies, and education television programs -- pull out references to computers in everything from MTV to Dan Rather.

4. **A Time Line**

Prepare a bulletin board that represents, in pictoral form, that gives the history of computers -- both physical objects and personalities. You can even include some science fiction conceptualizations that the students have worked out for the future





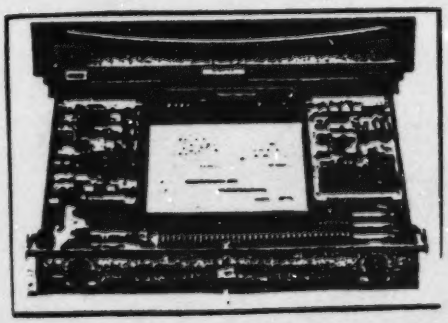
5. A Computer Dictionary

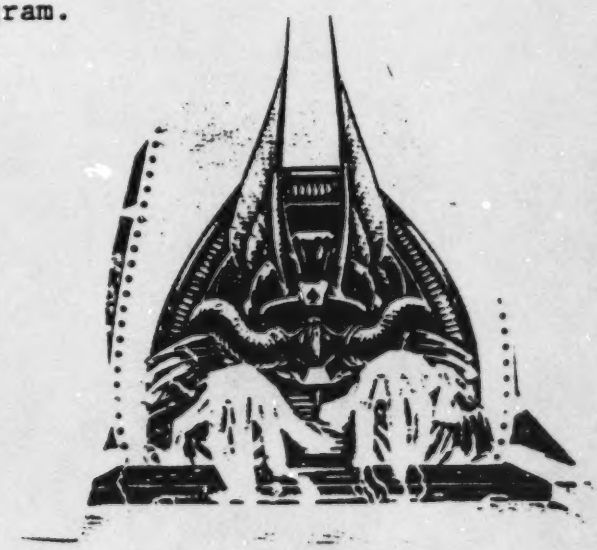
As a vocabulary building activity, have the students put a computer related word into a personal and/or class dictionary. Put a picture next to the word for easy recognition (using the right hemisphere of the brain). Discuss words like "bug" in computer usage -- a moth flew into an early computer and it took days to fix the thing. Extend this into a discussion of how any word comes into a dictionary -- have the student make up a few of their own words.

6. Creative Drama - Robotics and Programming

Divide the class into pairs. One person plays the programmer, the other the robot that has to do exactly what it's told - on command. Switch roles.

Have everyone write out step-by-step directions (a "program") of how to get to some particular place around the school (don't actually name it). Exchange papers and see if you can get there in 5 minutes -- come back to class and explain the "bugs" in the program.



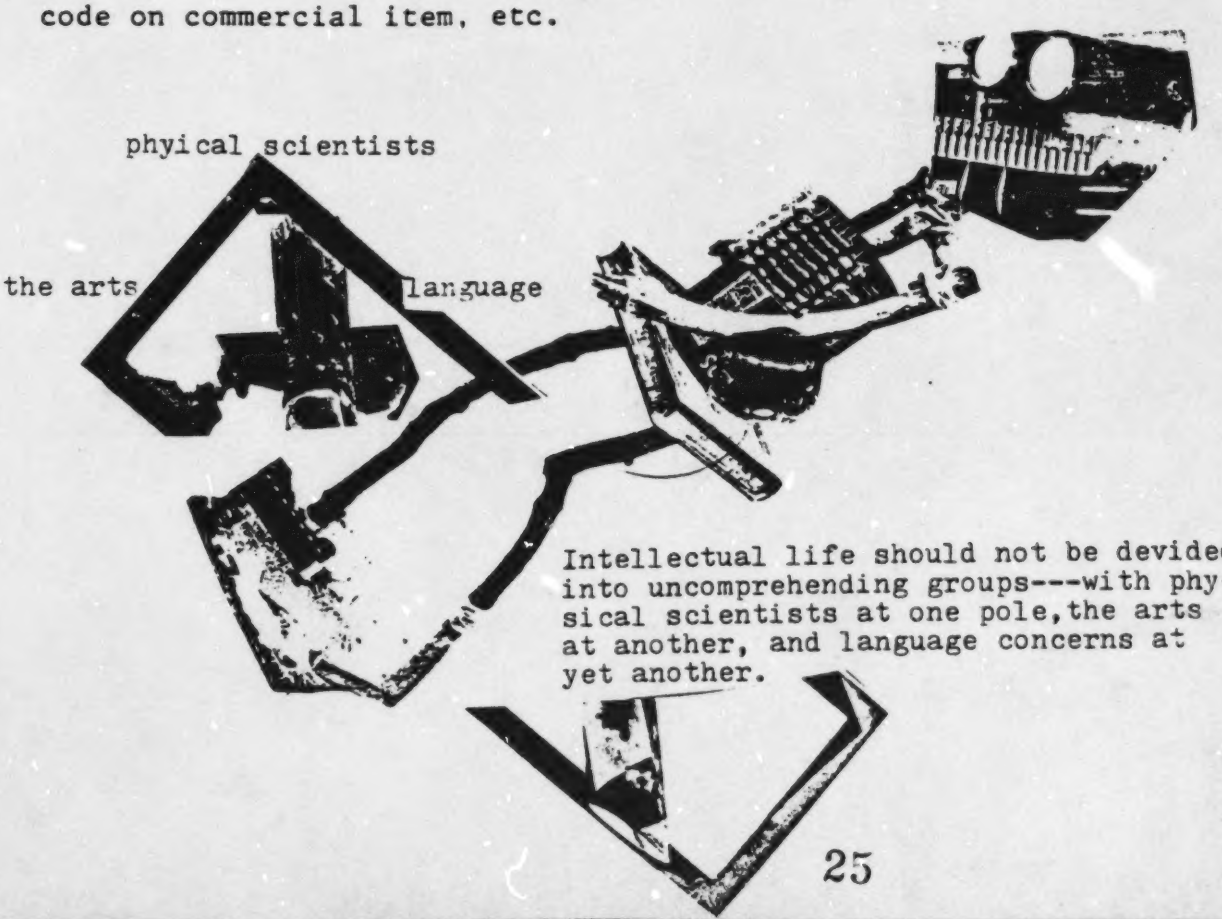


7. **A Walking Field Trip**

Take your students on a field trip to everything from the police department to the post office to the weather bureau to a local business using computerized information services. Many places that use computers should be within walking distance of the school. Have your children work out some tough questions -- not just a round of extreme politeness.

8. **Junk Sculpture**

Using a scavenger hunt kind of approach, have the students search out anything they can find that's related to (or a product of) computers -- IBM cards, library card, record album cover, receipt from automated teller; old transitors, tubes from old radios, broken digital watch, universal product code on commercial item, etc.



Intellectual life should not be devided into uncomprehending groups---with physical scientists at one pole, the arts at another, and language concerns at yet another.

8. Doing Art on the Computer

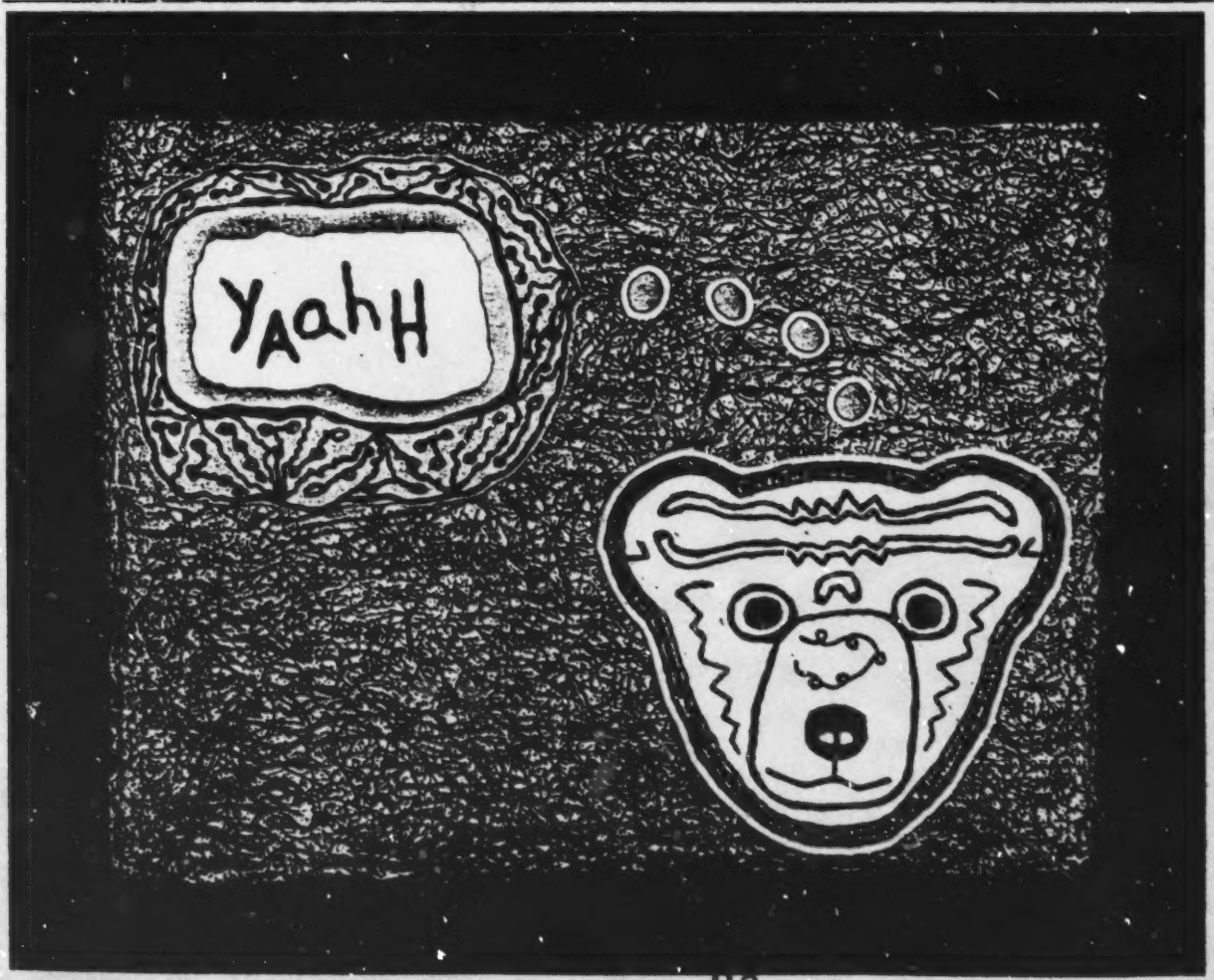
Computer networking gives students access to museum data banks all over the world---using telephone lines and satellites, images can be brought into the classroom for students to analyze and change---leading towards creative production. If you don't have a good graphics program(or lack networking facilities)than some of these ideas can be carried out by simply taking in art pictures.

To help children appreciate how artists recreate a story through pictures--they can become absorbed in the action of a picture. Entering into a picture, as they might a story dramatization, children can recognize how an artist uses lines to show movement and facial expression.

Children can see how color is used to create mood and tone--- and how certain parts of a picture are highlighted.

Geneva
Galerie Eric Franck

Charlemagne
Palestine
"Beastral Icon"



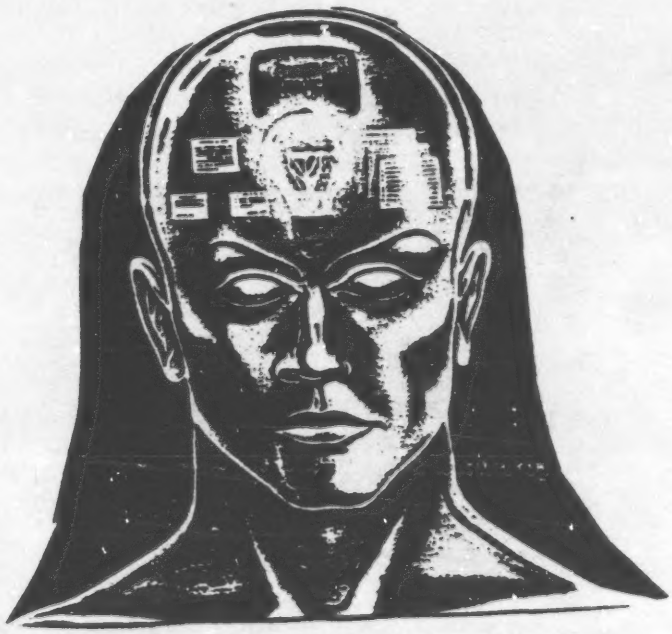
9. **The Want Ads**

Bring in as many recent newspaper want ads as you can find -- from large cities, etc. [Have the students bring in some as well.] See how many computer related jobs your children can find. You can even have them write make-believe resumes and letters responding to those ads. Interview each other using the information students have about computers, the want ads, and the resumes and/or letter.

10. **Protecting People from Computers**

Have the students ask adults they know about computer "mistakes" in their lives. [Some of the students might even have examples of their own.] Build a group language experience story. Connect it to articles on the same subject.

After this has been done you can discuss how data banks work and the problems for privacy. Have the class come up with some "rules" for how computers should be used in our society.



11. **How Does Technology Help or Hurt?**

Have the students come up with a list of various technological breakthroughs and inventions then list the pro's and con's of each. For example:

Invention	Positive Results	Negative Results
1. the automobile	a. freedom for individual rapid transportation b. could live further from workplace	a. air pollution b. suburbs c. dependence on foreign energy source
2. atomic energy	a. electricity b. stopped World War II	a. waste is poisenous for thousands of years b. the world could destroy itself
3. gene splicing	a. can synthesize new substances we can use for medicine, or as substitute for oil	a. mutants could get out of the lab and give us the equivalent of the plague
4. computers	----------	----------
5. television	----------	----------
6. airplance 7. microwave ovens	----------	----------

This way students can see that every technological breakthrough usually has positive and negative results. Questions like: "what can it do that I haven't been able to do before?" And, "does it make our life more pleasant?" can be asked.

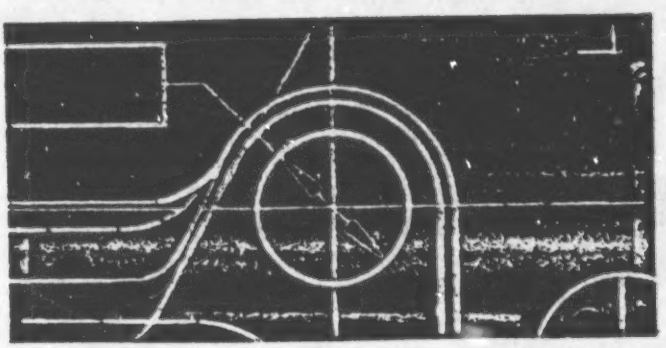
12. Powerful Tools Have Powerful Effects

Examine the mistakes of past predictions to better look into the future. Technology often has a life of its own -- it's ambiguous and difficult to predict. [Giving students a little ambiguity to deal with seems to help them with future change.]

To make this point have student go over old newspaper and magazines to find mistaken predictions for technology. Put them up for everyone to see. For example: Edison thought that his phonograph would be used by the telegraph office to relay messages. And Bell thought that his telephone would be used mainly by music lovers listening to distant concerts.

Discuss how in the late 1920's movies almost died with their mouths shut. Color television was ready to be mass produced at that time, and if the depression had not hit, "talkies" (thought to be a fad) would never have had the chance to get going.

Have the students make some future inferences about specific current technology. For example, the use of protein rather than silicon for microchips -- will this be combined with gene-splitting to breed microscopic chips?



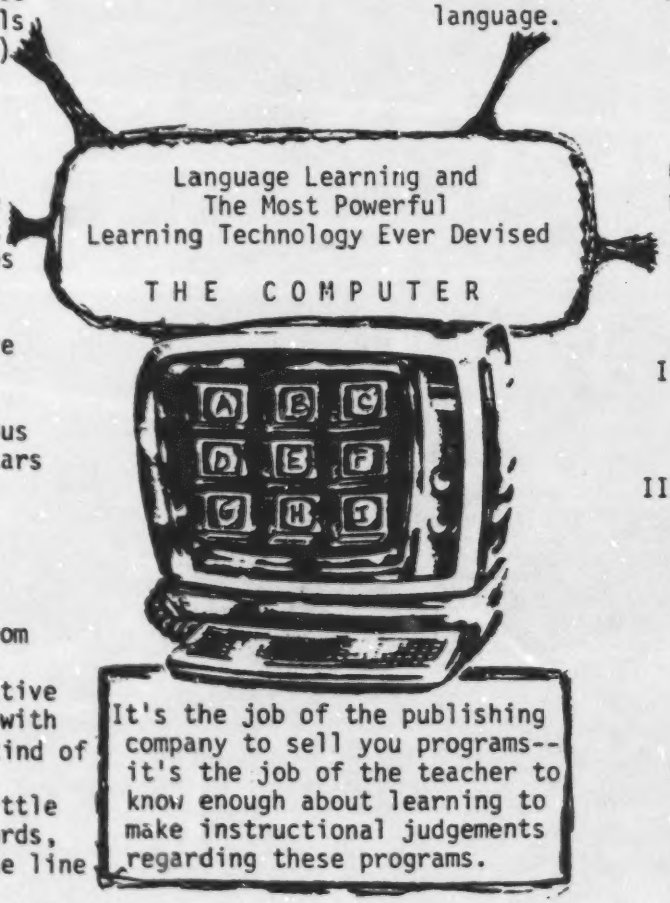
The Future of Our Children's Literacy Depends on You!

1. Trust the child to learn--and the teacher to teach

2. Active involvement in a language community is the best way to learn a language--it has nothing to do with exercises or "time on task." (There is a difference between rituals and literacy.)

It's a mistake to assume that much of what children learn about language is learned in school (which may teach the more trivial aspects of language).

a. Language is much more than vocabulary and grammar
b. Children won't pay attention to nonsense--they ignore what they don't understand
c. Children don't learn when there is no expectation of learning
d. Struggling to memorize results in loss of meaning (comprehenson)
e. Drill on the computer can destroy language.


Language Learning and
The Most Powerful
Learning Technology Ever Devised
THE COMPUTER
A B C
D E F
G H I
It's the job of the publishing company to sell you programs--it's the job of the teacher to know enough about learning to make instructional judgements regarding these programs.

I. The program must make sense to the child (it doesn't matter if it makes sense to adults).

II. Learning must have a real purpose--

III. Modeling--vicarious learning--rock stars films, etc. How many of us write well?--or enjoy writing?

IV. You learn best from computer programs that are colaborative --when you work with other people. A kind of spontaneous apprenticeship.

V. Where there is little risk--in other words, you are not on the line

Questions to ask regarding programs:

I. What is its use--and what does it do for the child (to learn this)

II. Does it take people out of the process--if you does you don't have education.

III. Does it control you (the computer has the potential for becoming the greatest control devise ever invented/or do you control it?

For the teacher: I. Don't be Afraid; II. Don't be Ignorant; III. Reject the control (Don't let them impose programs on you).

Conclusion

At all educational levels, it has been found that research can invigorate (rather than get in the way of) language/liberal arts instruction. All teachers can profit from connecting directly to the latest research and thinking in the field. Both students and teachers profit from being continually presented with significant new ideas. Technology can widen both the base and the access. The coming together of computer, television, satellite, and telephone technology can involve us in a vast communications network which, in and of itself, represents a significant new idea. This can widen horizons and help everyone create. Instruction is strengthened when teachers and students have the opportunity to break new ground together.

The language curriculum literature, art, music, and the rest of the liberal arts curriculum is rich in personal, emotional, and intellectual content. Computer based telecommunications can enhance performance, motivate and provide access for students isolated by either geography or handicap. Computers can also give students an additional opportunity for experimentation and intellectual growth that can connect (directly and indirectly) to other activities.

We need to extend education in a manner that both examines and utilizes the new technology as a learning vehicle. Language, literature, and other dimensions of the liberal arts must incorporate these technological tools if we are to prepare our students to live in a rapidly changing (increasingly smaller) global village. While computer based technology may not be a necessary item in everyone's life--it can serve as a tool for

communication, exploration, learning, and recreation. And it is a worthy subject matter in its own right.

Consumers Would Find More Choices, Lower Cost

Firms May Send Software Electronically

By PAUL RICHTER, *Times Staff Writer*

NEW ORLEANS—By the end of the year, more than half a dozen firms may be sending small computer software to consumers electronically, a move that could reduce prices and that has already sent a shudder through some conventional software distributors.

Hurrying to reach the market as soon as possible, some companies have been testing ways of sending software, the electronic instructions by which computers operate, by telephone lines to consumers' computers. Others plan to send software over telephone lines to terminals in retail stores, where the software can in turn be loaded onto blank discs or cartridges at the consumer's request.

The distribution system promises to cut packaging and inventory costs, allowing retailers with limited shelf space to carry a far greater selection of programs in the electronic memories of computer terminals. Although thousands of different software programs are on the market, retailers typically carry only a few dozen because of inventory costs and space limitations.

"It also reduces the chance that a retailer will run out of a title," said Roger Collins, president of Xante Inc., a Tulsa-based company that has been testing plans to put such terminals in computer specialty stores. "We think the market is now ready for this."

One market research firm, Framingham, Mass.-based International Data Corp., has estimated that revenues from sales of electronically distributed software will account for 10% to 15% of total sales estimated at $12 billion to $18 billion by 1988. Electronic distribution would thus then represent a market of $1.2 billion to $1.8 billion.

The prospect of such growth has frightened distributors who now sell software to retailers in preprogrammed discs and cartridges. But others have come to view the growth of the new channel as inevitable.

At the Softcon convention of the microcomputer software industry in New Orleans this week, distributor Micro D Inc. of Fountain Valley, announced that it will distribute programming terminals for San Francisco-based Softyme. Softyme will transmit software from host computers at five Micro D distribution branches to programming terminals at the retail stores.

Meanwhile, some retailers are upset because the new electronic distributors plan to transmit programs directly to consumer's homes. Such transmission has been done on a limited scale by home computer data-base services such as The Source of McLean, Va. Gimcrax Inc., also of McLean, plans to begin such an operation soon, charging consumers a one-time membership fee of about $50 plus charges for each program.

Gimcrax President Nathaniel Forbes said the firm will offer some games, educational programs and some of the simpler "productivity" programs, such as those used to calculate home finances. It will not offer some of the more complex programs written for business uses, because they would take hours to transmit and must be accompanied by lengthy user manuals explaining their operations, he said.

Gimcrax will transmit user instructions to customers—but only if the instructions are brief, he said.

Some analysts have speculated that electronic distribution will force software prices down. One distributor said prices could fall as much as 50% within several years.

Analysts say consumers will be less willing to pay a premium for software when it arrives over the telephone lines "without all the pretty packaging," in the words of one industry watcher. Analysts have also speculated that such major companies as A T & T and International Business Machines Corp. may eventually join in the move to distribute electronically.